

Class I, HEXAPODA.

Order V, LEPIDOPTERA.

THE NORTH AMERICAN NYMPHULINÆ AND SCOPARIINÆ.

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I have prepared the following account of the Nymphulinæ (Hydrocampinæ) and Scopariinæ at the instance of Professor C. H. Fernald, who has loaned me his material in these groups. Professor Fernald has undertaken a general account of the North American Pyralidæ (except the Crambinæ and Phycitinæ), but asked me to relieve him of the work on the present groups.

Family PYRALIDÆ.

Subfamily NYMPHULINÆ.

Moths usually of very slender build, the legs very long. Proboscis present. Fore wing with vein 7 from the cell, 10 usually stalked with 8 and 9, if not, the maxillary palpi are long and dilated at the extremity. Hind wing with the median nervure not pectinate.

The group is close to the Pyraustinæ, and not strongly distinguished therefrom. I am inclined to agree with Mr. Meyrick that the group should be united with the Pyraustinæ. I follow Sir George Hampson in holding them separate for convenience sake, though in the next catalogue I expect to see them united as they were in Smith's 1891 list, where Professor Fernald followed Mr. Meyrick's very sound views.

To this group belong those peculiar larvæ which are fitted for a wholly aquatic life; but not all the larvæ of the group are so modified, so that the group is defined on no larval character.

TABLE OF GENERA.

Palpi upturned.

Palpi with the third joint long and acuminate.

Maxillary palpi filiform, moderate.

- Hind wings with the outer margin excised before anal angle....**Ambia**.
 Hind wings with the outer margin even.
 Outer margin straight**Elophila**.
 Outer margin convex.....**Geshna**.
 Maxillary palpi long; dilated with scales at extremity.
 Hind wings with the outer margin evenly rounded.....**Nymphula**.
 Hind wings with the outer margin excavated below apex..**Oligostigma**.
 Palpi with the third joint short and blunt.....**Pileocera**.
 Palpi porrect.
 Hind wings with vein 4 absent**Diathrausta**.
 Hind wings with vein 4 present.....**Steniodes**.

Genus NYMPHULA Schrank.

- Nymphula* Schrank, Fauna Boica, ii, 162, 1802.
Hydrocampa Latreille, Fam. Nat., 478, 1825.
Paraponyx Hübner, Verz. bek. Schmett., 362, 1827.
Synclita Lederer, Wien. ent. Mon., 1863, 448.
Nymphælla Grote, No. Am., Ent., i, 97, 1880.
Hygraula Meyrick, Trans. N. Zeal. Inst., xvii, 129, 1885.
Hydewetis Meyrick, Trans. ent. soc. Lond., 1895, 435.

Palpi upturned, the second joint moderately fringed with hair in front and reaching vertex of head, the third well developed and acuminate; maxillary palpi long and dilated with scales at extremity; frons rounded: antennæ usually annulated; ocelli usually prominent; legs long, the tibiæ usually smooth with the spurs almost equal. Fore wings with veins 3, 4, 5 from angle of cell; 7 straight and well separated from 8, 9, 10; 10 usually stalked. Hind wing with the cell about half the length of the wing; veins 3, 4, 5 from angle; 6, 7 from upper angle; 7 strongly anastomosing with 8 (Hampson).

Synopsis of Species.

Hind wings white, the median lines obsolete.

Sexes usually dimorphic, the male with spots on forewing, the female uniformly dark gray**maculalis**.

Hind wings with dark lines, usually distinct, at least traceable, or all dark.

Hind wings with the central fasciæ even and parallel.

Hind wings with the central fasciæ approximate, wavy**allionialis**.

Hind wings with the central fasciæ remote, straight.

Fore wings shaded with brown; outer median band of hind wing broad.....**obscuralis**.

Fore wing white; mesial bands of hind wing alike.....**badiusalis**.

Hind wings with central fasciæ irregular, divergent centrally or lost.

Lines of hind wing indistinct, clouded.

Wings obscured by dark gray.

Discal spot white, contrasted.....**obliteralis**.

Discal spot metallic gray, obscure.....**nomophilalis**.

Hind wing white, the lines faint.....**gyralis**.

Lines of hind wing well marked.

Fulvous discal spot of hind wings without black edge.

Smaller, darker fulvous shaded, the marks contracted, the white areas reduced**nebulosalis.**

Larger, paler fulvous shaded, the marks expanded, the white areas developed**icciusalis.**

Fulvous discal spot of hind wing with a black edge.....**ekthlipsis.**

***Nymphula maculalis* Clemens.**

Sironia maculalis Clemens, Proc. Acad. Nat. Sci., Phil., xii, 218, 1860 (♂).

Nephopteryx seminiella Walker, Cat. Brit. Mus., xxxv, 1717, 1866 (♀).

Nymphocella dispar Grote, No. Am. Ent., i, 97, 1880.

Paraponyx maculalis Grote, New Ch. List N. Am. moths, 54, 1882.

Nymphula maculalis Fernald, Smith List Lep. Bor. Am., no. 4185, 1891.

Nymphocella maculalis Hart, Bull. Ill. Sta. Lab. Nat. Hist., iv, 167, 1895.

Nymphula seminiella Hampson, Trans. Ent. Soc. Lond., 142, 1897.

Nymphula maculalis Fernald, Bull. 52, U. S. Nat. Mus., no. 4495, 1903.

Male. Wings elongate, inner margin nearly as long as costa, outer margin short, convex, little oblique. Hind wings ample, the outer margin convex. White, head thorax and abdominal segments more or less overspread with dark gray; the collar usually whitish; legs white. Fore wing white, marked with dark gray along all the margins, at end of cell and over discal nervules, along median vein and in a spot across submedian space, dividing the white ground into four subquadrate patches; a submarginal light shade; a faint ochereous spot at base of veins 3-4. This dark marking is variable in extent, and the white marks may be confluent. The patches at end of cell and on submedian space tend to remain darker than the other marks. Hind wing white with a trace only of two dark bands, being a faint discal bar and mark at anal angle. Below white without markings. Expanse 20 mm.

Female. Fore wings dark slaty gray, uniform, unmarked. Hind wing as in the male, with a little more gray along outer margin and the discal mark obsolete. Expanse 25 mm.

Lake Teedyuscong, Pike Co., Pa. (Clemens); Lewis Co., N. Y. (Grote); Sand L., Fourth L., Cedar L., Fox L., Urbana, Ill., June 19, 22, July 8, 22, August 4, 11 (Hart).

1 ♂, 1 ♀, Mass. (C. H. Fernald); 2 ♂, 3 ♀, on leaves of *Nelumbo*, Pine River, Lake Superior, August 18, 1896, no. 7234 (H. G. Hubbard); 2 ♂, 4 ♀ on water-lily leaves, Big Tupper Lake, N. Y., August 26, 1905 (H. G. Dyar); 1 ♂, 1 ♀, New York, nos. 9630, 15814 (Asa Fitch collection); 1 ♂, 2 ♀, Cocoonut Grove, Fla. (E. A. Schwarz).

Ab. a. ♂. Fore wings heavily black marked, the white spots reduced in size; discal band of hind wings developed across wing as a nearly straight brown-black line.

1 ♂, Hamilton, Ontario (Jas. Johnson), no. 325, in coll. Prof. C. H. Fernald.

Ab. b., **fæminalis**, new variety. ♂. Fore wing dark slaty gray as in the normal female with a black discal mark and one on submedian interspace. Hind wing immaculate white.

3 ♂, Palm Beach, Fla., January 25, 1900 (H. G. Dyar).

Type no. 9494, U. S. Nat. Mus.

Ab. c., **masculinalis**, new variety. ♀. Entirely white, the fore wing with only slight gray shading on costa, outer margin, discal and submedian spots as in the normal male.

2 ♀, Cocoonut Grove, Fla. (E. A. Schwarz).

Type no. 9495, U. S. Nat. Mus.

The larva appears to be unknown: It is probably aquatic, as the adults are taken resting on leaves of water plants and flying from one to another when disturbed, at considerable distances from shore.

Nymphula allionealis Walker.

Paraponyx allionealis Walker, Cat. Brit. Mus., xii, 458, 1859.

• *Hydrocampa itealis* Walker Cat. Brit. Mus., xvii, 458, 1859.

• *Paraponyx cratacealis* Lederer, Wien. ent. Mon., vii, 484, 1863.

• *Paraponyx plenilinealis* Grote, Pap., i, 17, 1881.

Paraponyx cratacealis Grote, New ch. list No. Am. moths, 54, 1882.

Paraponyx plenilinealis Grote, New ch. list No. Am. moths, 54, 1882.

Hydrocampa allionealis Fernald, Smith List Lep. Bor. Am. no. 4171, 1891.

Paraponyx allionealis Hart, Bull. Ill. Sta. lab. Nat. Hist., iv, 173, 1895.

Nymphula allionealis Hampson, Trans. Ent. Soc. Lond., 142, 1897.

Nymphula itealis Hampson, Trans. Ent. Soc. Lond., 142, 1897.

Nymphula plenilinealis Hampson, Trans. Ent. Soc. Lond., 142, 1897.

Nymphula allionealis Fernald, Bull. 52, U. S. Nat. Mus., no. 4491, 1903.

♂. Inner margin long, outer margin convex, not oblique. Wings white to fuscous brown, rarely pure white, more often variously tinted with yellowish brown, rarely darkly colored; lines narrow, fuscous; fringe dark spotted; a narrow terminal line; a broader slightly waved band within; an irregular oblique outer line, bent in below discal dot and pointed out on submedian fold; an obscure inner line. Hind wing with a faint inner line, discal dot, two parallel lines beyond it, a waved submarginal line and dots on fringe. Below the marks repeated more faintly. Expanse, 14 to 17 mm.

♀. Wings more pointed, outer margin straight. Marks as in the male; ground color generally white, overspread with brown as in the male but more variable than that sex. Some specimens are entirely white, the marks all obliterated although in part traceable, very faintly brown. Others are all obscured by brownish gray, the markings obliterate, even less traceable than in the white form.

Georgia (Walker); Wisconsin, September (Grote); Urbana, Ill., May 29, June 7, 29, July 6, 7, 23, 27 (Hart).

1 ♂, no. 279 coll. Prof. C. H. Fernald, compd. with type of *cretacealis*; 6 ♀, Holyoke, Mass., July 14, 27, 28, 1898 (C. H. Fernald); Florida (coll. C. H. Fernald); 2 ♀, Cayugo Co., Ohio, Chicago, Ill. (coll. W. D. Kearfott); 1 ♀, Chicago, Ill. (A. Kwiat); 14 ♂, 23 ♀, Palm Beach, Coconut Grove and Miami, Fla., March, August (Barnes, Schwarz, Dyar and Caudell).

The larva appears to be undescribed. Hart remarks that it is probably related to that of the European *strattonata*, which differs from that of *Nymphula obscuralis* Grote in the lesser development of the respiratory filaments.

***Nymphula obscuralis* Grote.**

Oligostigma obscuralis Grote, Pap., i, 18, 1881.

Oligostigma obscuralis Grote, New ch. list No. Am. Moths, 54, 1882.

Hydrocampa obscuralis Fernald, Smith list Lep. Bor. Am., no. 4169, 1891.

Paraponyx obscuralis Hart, Bull. Ill. Sta. Lab. Nat. Hist., iv, 167, pl. I, ff. 1-7, 1895.

Nymphula obscuralis Hampson, Trans. ent. soc. Lond., 142, 1897.

Nymphula obscuralis Fernald, Bull. 52, U. S. Nat. Mus., no. 4493, 1903.

♂. White, the fore wings shaded with blackish brown; outer line white, wavy, bent inward at median vein and obsolete, followed by a broad, dark shade; a dark half-band at middle of inner margin; base dark; terminal line black, incised subapically; fringe dark. Hind wing with slender mesial line, broad, dark outer mesial band; a broad marginal orange band with a slender dark line within and row of geminate spots without in the base of the white fringe. Expanse 17 mm.

♀. Similar. Expanse 21 to 29 mm.

N. Y., Wis., September (Grote); Urbana, Ill. (Hart).

1 ♂, Algonquin, Ill., August 22, 1904 (W. D. Kearfott); 1 ♀, Fla., no. 259 (coll. Prof. C. H. Fernald); 7 ♀, Harpers Ferry, Va., July, August, 1892, U. S. Dept. Agr. no. 4330 (T. Pergande); 1 ♀, Ohio, 1 ♀ without label (coll. U. S. Nat. Mus.).

The larva has been described by Mr. Hart. He says the favorite food of the larva is *Vallisneria spiralis* and that it has also been found upon *Potamogeton nutans*. They feed at first exposed on the leaf but later two or even three leaves are loosely webbed together face to face by each larva. The cocoon is fine and dense. Full grown larvæ and pupæ were obtained in July. Later they occurred in floating cases made by cutting loose the larval retreats and they were still to be found in September and October. The method of hibernation is not proven though a larva is recorded in December and they doubtless hibernate as larvæ in the water.

Larva. Head pale, faintly mottled, sutures light yellowish brown, setæ long, clypeus margined in front with dark brown; ocelli five with angular black pigment spots. Body whitish; tubercles normal, small, the setæ short, iv and v superposed subventrally, rather remote. Five pairs of filamentous branched gills on each side on each segment except on head, prothorax and terminal segment; the mesothorax lacks one pair, the penultimate segment lacks all but one pair, there being just 100 in all. The gills have each from three to five branches with some variation, which Hart tabulates. They increase also in number in the several stages. Hart tabulates six stages, in which the number of branches of the gills of the first four abdominal segments varies from one in stage 1 to six at maturity. The gills are situated: subdorsal anterior, below tubercle i; subdorsal posterior, above tubercle ii; subventral anterior, before tubercles iv + v; subventral posterior, behind tubercles iv + v; pedal, behind tubercle vi. Abdominal feet short, normal, the crochets in a wide complete ellipse.

Pupa. Spiracle-bearing segments broadest, slightly swollen dorsally, tapering gradually to each end. Rather soft bodied, pale-yellowish white, the eyes darker; smooth. Head small with two deliscent spine-like porrect setæ on the vertex. Spiracles of segments 2 to 4 of the abdomen large and conspicuous, borne on round tubercles. Ventral sheath reaching a little beyond end of 7th segment; 9th segment beneath with a faint elevated line at middle and a small elevation on each side, the anterior margin conspicuously elevated into a broad transverse ridge bearing a row of seven sharp, brownish, short, longitudinal carinæ; a V-shaped impression beneath.

***Nymphula badiusalis* Walker.**

Cymoriza badiusalis Walker, Cat. Brit. Mus., xix, 955, 1859.

• *Oligostigma curviferalis* Walker, Cat. Brit. Mus., xxxiv, 1331, 1865.

• *Oligostigma albalis* Robinson, Ann. N. Y. Lyc. nat. hist., ix, 153, 1869.

Oligostigma albalis Grote, New ch. list. No. Am. moths, 54, 1882.

Hydrocampa albalis Fernald, Smith list Lep. Bor. Am., no. 4170, 1891.

Paraponyx albalis Hart, Bull. Ill. Sta. lab. nat. hist., iv, 173, 1895.

Nymphula badiusalis Hampson, Trans. ent. soc. Lond., 142, 1897.

Nymphula badiusalis Fernald, Bull. 52, U. S. Nat. Mus., no. 4492, 1903.

♂. Inner margin long, outer convex, not oblique. White; a marginal yellow band on both wings finely edged with fuscous. On fore wing a fuscous submarginal band; a discal ringlet with yellow spot below; a costal bar beyond, joining the ringlet and continued inwards and over submedian interspace to margin. Hind wing with two nearly straight fuscous bands. Below the markings repeated faintly. Expanse, 15 mm.

♀. The fore wings are more pointed than the male, the outer margin more oblique. The markings do not differ. Expanse, 22 mm.

Canada (Walker); N. Y., Pa. (Robinson); No. Ill. and So. Wis., June 19, August 3, 4, 9, 30, September 5, 6, 30 (Hart).

1 ♂ (coll. Prof. C. H. Fernald); 1 ♂, Va., September 16, 1880 (U. S. Dept. Agr.); 1 ♂, Ill., August 6 (Bolter); 4 ♂, 2 ♀, Washington, D. C., June 13, 1883, June and July, 1899, August 4,

1879, August 25 (Pergande, Koebele, Busck, Caudell); 1 ♀, Ohio (W. C. Metz); 1 ♂, Aurora, W. Va., August 30, 1904 (O. Heide-mann); 4 ♂, 6 ♀, Rhinebeck, N. Y., August 1885, July 27, 1887, July 8, 30, 1888, Ulster Co., N. Y., September 6, 1887, July 2, 16, 1888 (H. G. Dyar).

The larva appears to be undescribed. Hart remarks that it is "doubtless very close to" that of the preceding species. The adult is common throughout the Atlantic states and Mississippi valley, flying over water.

***Nymphula oblitalis* Walker.**

Isopteryx? oblitalis Walker, Cat. Brit. Mus., xvii, 399, 1859.

• *Paraponyx obscuralis* Möschler, Verh. zool.-bot. Ges. Wien., 432, 1872.

• *Hydrocampa proprialis* Fernald, Ent. Amer., iv, 37, 1888.

Hydrocampa oblitalis Fernald, Smith List Lep. Bor. Am., no. 4167, 1891.

Hydrocampa oblitalis Hart, Bull. Ill. Sta. lab. nat. hist., iv, 176, Pl. II, figs. 7-12, 1895.

Nymphula oblitalis Hampson, Trans. ent. soc. Lond., 141, 1897.

Nymphula oblitalis Fernald, Bull. 52, U. S. Nat. Mus., no. 4496, 1903.

♂. All obscured, blackish or brown. Discal dot small, white, surrounded by a white line, which may expand into a cloud, touching costa; a faint lighter line across middle of wing and a subbasal dilution. Hind wing blackish brown with a faint mesial white line. Lighter specimens approach the female more closely in markings. Expanse 13 mm.

♀. Lighter, the marks less obscured. The ground color is overspread with blackish and ochereous; a subbasal dark line edged with white without; a median shade, black, edged with white without, expanded below, sending a black shade about the large white reniform discal spot; a subterminal black shade. Hind wing with the mesial lines pale, joining at the anal angle, enclosing a pale discal mark on a dark ground, or nearly completely overspread with brown. Expanse 28 mm.

Fla., Tex. (Fernald); Ill. (Hart).

1 ♂, 1 ♀ "from aquatic larva on water lilies" Florida, March, 1888, no. 4261 (U. S. Dept. Agriculture); 1 ♂, Texas (Boll); 2 ♂, Victoria, Texas (E. A. Schwarz); 1 ♂, 1 ♀, Somerville, S. C., April, 1899 (R. Ottolengui); 1 ♀, Palm Beach, Fla., February 4, 1900 (H. G. Dyar); 1 ♂, 2 ♀, Rhinebeck, N. Y., August 9, 1887, July 26, August 18, 1888 (H. G. Dyar); 1 ♀, West Palm Beach, Fla. (Dyar & Caudell); 2 ♂, Green Cove Springs, Fla., March (Dyar & Caudell); 1 ♂, 3 ♀, St. Louis, Mo., July 14, August 28, September 25, 1904 (H. McElhose); 3 ♀, Los Angeles, Cal. (D. W. Coquillett); 1 ♀, Fla. (coll. Prof. C. H. Fernald); 1 ♀, Texas, labelled "*Hydrocampa gyralis* Hulst, type" in Dr. Hulst's writing (coll. Prof. C. H. Fernald); 1 ♀, Claremont, Cal. (C. F. Baker).

The larva has been well described and figured by Hart. He says that the favorite home of the species is among the floating leaves of *Potamogeton nutans*. The amber-colored eggs are laid in a long band just within the margin, on the lower surface, of some broad floating leaf. They are closely placed in a single layer, in rows running parallel to the margin, the band being about 3 mm. wide and including usually five or six rows of eggs. The band is usually an inch or two long. The single egg is oval, flattened, one surface broadly gummed to the leaf, the other finely longitudinally wrinkled, a longitudinal elevated ridge at middle. Length .6 mm., width .4 mm. Young larvæ were obtained in July. The next day they had cut out minute oval disks from the leaf and webbed these to its lower surface. When a little older the larva cuts loose the portion of leaf surface to which it has attached its shelter and is thereafter found travelling about in a lens-shaped case. In larger cases the posterior end is narrowed. Full grown larvæ occurred in August, but larvæ could be found all Summer to October. The imagoes likewise occurred all the season, becoming commoner, most abundant in August and September. The method of hibernation is not stated. The young larva does not differ markedly from the mature one. Mr. Hart says that in the first stage the setæ are more conspicuous and the ocelli are closely approximate, the lower three in a solid oblong dash.

Larva. Head rather small, light brownish yellow, sutures narrowly darker, bordered on each side with whitish; a lateral brown stripe from base of head nearly to ocelli; ocelli five, their pigment spots large and confluent. Body subcylindrical, dirty whitish; cervical shield semicircular, bisected; tubercles of thorax indicated by dark rings, abdominal ones indistinct; spiracles of anterior abdominal segments more distinct, remaining ones minute and inconspicuous; ninth abdominal segment above broadly retuse, tenth feebly impressed above at middle. Abdominal feet very short, the hook-bearing area narrow, with two rows of light-colored hooks. No filamentous gills, but aquatic in habit.

Pupa. Rather rapidly narrowed behind, smooth, pale yellowish, wings and head darker. Head with two small dehiscent black spine-like porrect setæ on the vertex. Spiracles of segments 2 to 4 round, elevated, reddish brown, with a pale center and blackish ring; very large, the anterior pair much smaller. Ventral sheath reaching the seventh abdominal segment; ninth with a sharp tooth each side above lateral margin; the last two segments grooved and impressed below.

***Nymphula nomophilalis*, new species.**

Wings elongate, narrow, recalling *Nomophila noctuella* D. & S. Fore wing dark brown with a bronzy reflection, uniform in the female, lightened in two patches

in the male, over middle of cell and beyond discal dot; two discal dots and outer and inner lines indicated in plumbeous scales, the latter excurved over cell, simple in the female, indicated by a white costal line in the male just beyond the light discal patch; a subterminal band of scattered plumbeous scales. Hind wing gray-brown, three black patches on inner margin, two faint submarginal whitish lines, most distinct before anal angle. Fore wings below unmarked, gray-brown; hind wing gray-brown with the outer lines repeated. Expanse, 20 to 22 mm.

1 ♂, 2 ♀, Hastings, Fla., April (W. D. Kearfott); 3 ♀, Charlotte Harbor, Fla., March, Lake Worth, Fla. (Mrs. Slosson) and Texas, March (coll. Prof. C. H. Fernald); 1 ♀, Cocoanut Grove, Fla. (E. A. Schwarz).

Type No. 9493, U. S. Nat. Mus.

Nymphula gyralis Hulst.

Hydrocampa gyralis Hulst, Trans. Am. ent. soc., xiii, 159, 1886.

Hydrocampa gyralis Fernald, Smith list Lep. Bor. Am., no. 4172, 1891.

Hydrocampa gyralis Hart, Bull. Ill. Sta. lab. nat. hist., iv, 175, 1895.

Nymphula dentilinea Hampson, Trans. ent. soc. Lond., 139, 1897.

Nymphula gyralis Fernald, Bull. 52, U. S. Nat. Mus., no. 4489, 1903.

♂. Wing shape the same as the female. Fore wings with the ground overwashed with ochereous and gray or entirely gray, leaving narrow white edges to the markings. Discal dot large, reniform, white, edged with black without; a black triangle with white mark without on middle of costa and spot opposite it on internal margin, both white-edged; a small spot cut by white subapically, in well-marked specimens joined to the outer edge of reniform and beneath it to the middle costal spot, a fine white line being continuous, though broken in pale specimens; a black subbasal toothed line: a terminal white line, touching margin at middle, produced inward between the veins, diffused. Hind wing nearly white, a little ochereous shaded; central lines white, diverging mesially, edged within with gray and enclosing a white discal space and a smaller one near margin; a white terminal space, followed by a dark line. Markings not sharply defined, varying to subobsolete. Expanse, 17 to 21 mm.

♀. Fore wings suffused and obscured, unicolorous, only slight traces of the markings persistent. Sordid ochereous, brown-gray or dark cinereous, very variable in color. Hind wings as in the male but more faintly marked, in white and pale gray only. Expanse, 18 to 24 mm.

Professor Fernald has sent me a specimen purporting to be one of Hulst's types of *gyralis*, but it is a ♀ of *N. oblitalis* Walk. from Texas, a locality not mentioned by Hulst in his original description, and it is obviously a spurious type. The sexes are strongly dimorphic. Hart correctly identifies the female, of which I have many, taken in company with normal males.

Georgia, Florida (Hulst.); Urbana, Ill., June 17, July 19, August 24 (Hart); Florida (Hampson).

1 ♀, Mass. (coll. Prof. C. H. Fernald); 1 ♂, 1 ♀, Miami, Fla., (Mrs. Slosson); 1 ♂, no. 264, labelled "*Hydrocampa gyralis* Hulst, homotype" in Prof. Fernald's writing (coll. Prof. C. H. Fernald); 4 ♂, 1 ♀, Miami, Fla. (W. Barnes); 2 ♂, 2 ♀, Cocanut Grove, Fla. (E. A. Schwarz); 1 ♀, Crescent City, Fla., on blue water lily (H. G. Hubbard); 1 ♀, Palm Beach, Fla., February 16, 1900 (H. G. Dyar); 1 ♂, St. Louis, Mo., September 8, 1904 (H. McElhose); 1 ♀, Weekapaug, R. I., August 29, 1904 (H. G. Dyar); 11 ♂, 9 ♀, Big Tupper Lake, N. Y., August 26, 1905 (H. G. Dyar).

The larva appears to be undescribed. The adults occurred to me at Tupper Lake, N. Y., flying on the leaves of water lilies in company with *N. maculalis* Clem. They had evidently bred there as undeveloped specimens were seen on the leaves. Larvæ occurred on the plants in cases made of pieces of leaf, attached either to the leaf or lower down on the gelatinous stem. The larvæ were abundantly supplied with tracheal filaments as Hart describes for *Nymphula obscuralis* Grote; but it proved impossible to breed them as they hibernated in the water as larvæ, so I do not know to which species they belong.

Nymphula nebulosalis Fernald.

Hydrocampa nebulosalis Fernald, Ent. Amer., iii, 127, 1887.

Hydrocampa nebulosalis Fernald, Smith list. Lep. Bor. Am., no. 4173, 1891.

Nymphula nebulosalis Fernald, Bull. 52, U. S. Nat. Mus., no. 4488, 1903.

Fore wing rather bright ochereous yellow, the markings black, edged with white. The markings are as in *N. gyralis* Hulst, but more diffused and partly lost in a brown shade that overspreads the terminal and central parts, leaving a broad yellow area without the discal mark; this mark is narrow, lunate; subterminal line retreating from the margin below, sometimes interrupted. Hind wing white in the middle, the base and a large discal mark yellow; mesial lines black, separating centrally to enclose the discal yellow patch; a broad yellow or fuscous yellow subterminal band; termen yellow with black line within. Legs spotted with white and fuscous yellow, Expanse, 15 to 18 mm.

This species is allied to *N. gyralis* Hulst, but the sexes are alike. It is even more nearly related to *N. icciusalis*, Walk., from which it differs only in being smaller and darker, the marks overspread with brown.

Florida (Fernald).

2 ♀, Fla. (coll. Prof. C. H. Fernald); 1 ♂, Fla. (coll. U. S.

Nat. Mus.); 1 ♂, 1 ♀, Hastings, Fla., May (G. D. Hulst); 4 ♀, Hastings, Fla., April (W. D. Kearfott).

Nothing is known of the life history.

Nymphula icciusalis Walker.

- *Leucochroma icciusalis* Walker, Cat. Brit. Mus., xix, 971, 1859.
- *Leucochroma faulalis* Walker, Cat. Brit. Mus., xix, 973, 1859.
- *Hydrocampa ? formosalis* Clemens, Proc. Acad. Nat. Sci. Phil., xii, 217, 1860.
- *Hydrocampa genuinalis* Lederer, Wien. Ent. Mon., vii, 451, 1863.
- *Hydrocampa genuinalis* Lederer, Wien. Ent. Mon., vii, pl. 18, f. 2, 1863.
- *Hydrocampa pocalis* Grote, Papilio, i, 17, 1881.
- Hydrocampa formosalis* Grote, New Ch. List No. Am. Moths, 54, 1882.
- Hydrocampa formosalis* Packard, Amer. Nat., xviii, 824, 1884.
- Hydrocampa icciusalis* Fernald, Smith List Lep. Bor. Am., no. 4174, 1891.
- Hydrocampa icciusalis* Hart, Bull. Ill. Sta. Lab. Nat. Hist., iv, 176, 1895.
- Nymphula icciusalis* Hampson, Trans. Ent. Soc. Lond., 139, 1897.
- Nymphula icciusalis* Fernald, Bull. 52, U. S. Nat. Mus., no. 4487, 1903.

Wings white, marked between the lines with defined areas of ochereous yellow or ochereous brown; discal mark defined without by a black line; a black line for costal triangle; a black ring for the mark on inner margin; a black subterminal line, retreating below the middle; fringes spotted with black. Hind wing with the central black lines diverging in the middle, enclosing a yellow discal patch; subterminal line fine, irregular. Expanse 15 to 23 mm.

The sexes are alike. The markings are as in *N. gyalis* Hulst and *N. nebusalis* Fernald, but well defined, the dark patches white centered and only the outlines black.

Lake Teedyuscong, Pike Co., Pa. (Clemens); Providence, R. I. (Packard); New York (Grote); Urbana, Ill., May 19, 31, June 3, 15, 26, July 5, 6, 7, 20, 21, 28, August 2, 17, 24; Lake Geneva, Wis., September 3 (Hart).

3 ♂, 5 ♀, Fla., Pa., Orono, Maine (coll. Prof. C. H. Fernald); 3 ♂, 8 ♀, N. H., Mass., N. Y., Ohio (coll. U. S. Nat. Mus.); 1 ♂ from P. C. Zeller labelled "*Hydrocampa genuinalis* Led."; 2 ♂, 2 ♀, nos. 8338, 15812, 15813 and "dugway" June 25, 1859 (coll. Asa Fitch); 6 ♀, Rhinebeck, N. Y., June 10, 11, 15, July 30, 1888 (H. G. Dyar); 1 ♂, Sandusky, Ohio, July 7, 1903 (W. C. Metz); 8 ♂, 12 ♀, Center Harbor, N. H., July 10, 1902 (H. G. Dyar).

The larva has been nominally figured by Dr. Packard. Hart mentions it as probably allied to that of *N. oblitalis* Walk. The adults fly in grass near or on the shore, not out on the water or even over the water, being easily reached with the net from dry ground. The

larvæ probably feed on water grasses rather than lilies. Dr. Packard figures a larva without tracheal filaments and gives a number of details, which it is scarcely worth while to reproduce here as his larva was not bred and may not belong to this species.

Nymphula ekthlipsis Grote.

Hydrocampa ekthlipsis Grote, Can. ent., viii, 111, 1876.

Hydrocampa ekthlipsis Grote, New ch. list, No. Am. moths, 54, 1882.

Hydrocampa ekthlipsis Fernald, Smith list, Lep. Bor. Am., no. 4175, 1891.

Hydrocampa ekthlipsis Hart, Bull. Ill. Sta. lab. nat. his., iv, 176, 1895.

Nymphula ekthlipsis Hampson, Trans. ent. soc. Lond., 139, 1897.

Nymphula ekthlipsis Fernald, Bull. 52, U. S. Nat. Mus., no. 4400, 1903.

Body white, the thorax spotted with black, the abdominal segments banded. Wings ochereous yellow; a subbasal white band edged with black; a small white dot in cell, black-edged; a white triangle on costa opposite to, and sometimes confluent with a round mark on inner margin, black-edged; discal spot large, round, joined to costa, black-edged; subterminal line white, lunate within, black-edged without; fringes spotted. Hind-wing white, black central lines remote and rather straightened, the inner with a yellow basal edge; discal mark reniform, yellow, black-edged, subdivided; beyond outer line a yellow area terminated in a dentate black line; margin yellow, edged with black lines. Expanse, 20 to 25 mm.

The species is allied to *N. icciusalis* Walk., but the markings are further modified in the same direction and are more ornate and distinct. The sexes are alike.

Albany, N. Y. (Grote); Champaign, Ill., July 5 (Hart).

1 ♀, Amherst, Mass., "homotype" (C. H. Fernald); 1 ♀, Western Manitoba (A. W. Hanham); 15 ♂, 18 ♀, Center Harbor, N. H., June 23, 25, 1902 (H. G. Dyar).

The larva is unknown. I took the adults commonly flying over water in reeds at the shore of the lake in company with *N. icciusalis* Walk., but further out, so that they could not be reached from dry ground.

Genus *OLIGOSTIGMA* Guenée.

Oligostigma Guenée, Spec. Gén., viii, 260, 1854.

Oligostigma Hampson, Trans. ent. soc. Lond., 167, 1897.

Palpi upturned, the second joint moderately fringed with hair in front and reaching vertex of head, the third well developed and acuminate; maxillary palpi long and dilated with scales at extremity; frons rounded; antennæ of male usually annulated; ocelli rarely prominent; legs long, the tibiæ smooth, with the spurs almost equal. Fore wing with veins 3, 4, 5 from angle of cell; 7 straight and well separated from 8, 9, 10. Hind wing with the cell about half the length of the wing; veins 3, 4, 5 from angle; 6, 7 from upper angle; 7 strongly anastomosing with 8; the outer margin excised below apex, then lobed (Hampson).

Synopsis of Species.

Outer margin of hind wings with a slight subapical indentation.....**seminealis**.
 Outer margin of hind wing distinctly indented subapically, crenulate.....**vittatalis**.

Oligostigma seminealis Walker.

Oligostigma seminealis Walker, Cat. Brit. Mus., xvii, 430, 1859.

Eustales tedyuscongalis Clemens, Proc. Acad. Nat. Sci., Phil., xii, 216, 1860.

Paraponyx tedyuscongalis Grote, New ch. list No. Am. moths, 64, 1882.

Oligostigma semineale Hampson, Trans. Ent. Soc. Lond., 167, 1897.

Oligostigma juncealis Fernald (not Guenée), Bull. 52, U. S. Nat. Mus., no. 4502, 1903.

♂. Fore wing fuscous, shaded with ochereous; a white outer band bent at right angles inward in submedian space, becoming obscure on inner part; a faint black discal mark and median shade; a narrow white submarginal line with a black hair-line without; margin fulvous. Hind wing white; a median straight black band; an outer broader band separated from the fuscous margin by a narrow white line, partly replaced by fulvous at apex and center of outer margin. Small black spots on margin with minute pupils. Below as above, slightly fainter. Expanse 18 mm.

♀. Unknown.

This species has been erroneously referred in our lists to *O. juncealis* Guen. from South America. The two species are really distinct. I have a fine series of the true *juncealis* from Brazil and the Guianas (W. Schaus).

Lake Teedyuscong, Pike Co., Pa. (Clemens).

1 ♂, Cocoanut Grove, Fla. (E. A. Schwarz).

Oligostigma vittatalis, new species.

Body brown with whitish on sides of thorax and abdominal rings. Fore wings silvery white; basal third dark brown, cut by a white subbasal line and one just at edge, cutting off a linear dark inner line; outer line linear, dark, curved to below cell, then straight to margin, the curve to costa filled in with dark over the discal mark, which shows obscurely as two parallel darker lines. A broad subterminal shade, separated by white from the outer line and terminal dark shade, the latter narrow, sinuous; fringe spotted black and white with a black basal line. Hind wing marked in the same manner, the outer line a little less decidedly bent, the terminal shade enclosing faint orange shading at the margin. Expanse, 14 to 18 mm.

2 ♂, Biscayne Bay, Fla. (Mrs. Slosson); Hastings, Fla., April (W. D. Kearfott),

Type no. 9496, U. S. Nat. Mus.

The species resembles in appearance *Diasemia ramburialis* Dup.

Genus AMBIA Walker.

Ambia Walker, Cat. Brit. Mus., xix, 957, 1859.

Opistheideicta Warren, Ann. Mag. Nat. Hist. (6), v, 478, 1890.

Oligernis Meyrick, Trans. Ent. Soc. Lond., 470, 1894.

Leucogephyra Warren, Ann. Mag. Nat. Hist. (6), xviii, 219, 1896.

Ambia Hampson, Trans. Ent. Soc. Lond., 159, 1897.

Palpi upturned, the second joint reaching vertex of head and nearly naked, the third long and acuminate; maxillary palpi filiform and of moderate length; frons rounded; legs of moderate length, the spurs long and equal. Fore wing with the apex slightly produced, the outer margin somewhat excised below apex; veins 3, 4, 5 usually from angle of cell; 7 straight and well separated from 8, 9, 10. Hind wing with the apex produced, the outer margin somewhat excised below apex and with two excisions towards anal angle; the inner margin very short; veins 3, 4 from angle of cell; 5 usually from somewhat above angle; 6, 7 from upper angle (Hampson).

Ambia striatalis, new species.

Shining white; all the interspaces of both wings from middle to margin broadly streaked with brown. Fore wing subfalcate at apex, margin crenulate; hind wing sharply crenulate, excavate opposite cell and at anal angle. Fore wing brown at base, the disk white, confusedly shaded in dull ochre; a white line from costa at outer fourth, bent in below cell and reaching margin at middle, obscured by a brown shade, the space beyond streaked in brown. Hind wing white at base; a mesial brown band, enclosing near its edges on each side a white line, the outer of which is roundedly waved; space beyond to margin brown streaked. Expanse, 18 to 20 mm.

1 ♂, 1 ♀, Charlotte Harbor, Fla., March (Mrs. Slosson).

The types are in the collection of Prof. C. H. Fernald.

Genus *ELOPHILA* Hübner.

Elophila Hübner, Tentamen, 2, 1806.

Cataclysta Hübner, Verz. bck. Schmett., 363, 1827.

Chrysendeton Grote, Pap., i, 16, 1881.

Anydraula Meyrick, Trans. Ent. Soc. Lond., 427, 1885.

Cataclysta Hampson, Trans. Ent. Soc. Lond., 147, 1897.

Palpi upturned, the second joint reaching vertex of head and slightly fringed with hair in front, the 3d long and acuminate; maxillary palpi small and filiform; frons rounded; antennæ annulate with rings at the joints; legs long and slender, the spurs long and nearly equal. Forewing with veins 3, 4, 5 from angle of cell; 7 straight and well separated from 8, 9, 10. Hind wing with veins 3, 4, 5 from angle of cell; 6, 7 from upper angle or stalked (Hampson).

Synopsis of Species.

Hind wings without a black powdered space between disk and termen.

Both wings dark gray; hind wings with submarginal line.....**brunnildalis**.

Ground color white; no continuous submarginal line.

Hind wings with a black costo-discal bar**bifascialis**.

Hind wings without such a bar**drumalis**.

Hind wings with such a black powdered space.

Fore wings with the subterminal silvery bar narrowing to apex or detached; silvery spots on wing rounded, separate.

- An angular white spot above middle of inner margin.....**claudialis**.
 This spot not present.....**slossonalis**.
 Fore wing with the subterminal mark a costo-apical dash diminishing below ;
 markings of confused lines.
 Fore wing with defined silvery white patches, especially an angular one
 above inner margin ; marginal dots of hind wings pupilled..**magnificalis**.
 Fore wing variable but without this patch ; marginal dots of hind wing not
 ocellate.
 Hind wing with a white area before the marginal dots.
 Small ; no yellow beyond mesial line on hind wing.....**fulicalis**.
 Larger ; a yellow extra-mesial bar.....**cronialis**.
 Hind wings all dark gray to the margin.....**schæfferalis**.

Elophila brunnildalis, new species.

Fore wings dark brown, lighter in median space and about anal angle ; no lines visible on basal portion : inner line near middle, dark, slender, slightly waved, narrowly separated from the basal dark area by a light space ; outer line at outer third, erect, dentate, slender, dark, relieved without by a light space ; there is a faint indication of a line from its middle towards outer margin, being the remains of the out-curve seen in *onyxalis* Hampson, but here almost completely obsolete ; an illy defined pale submarginal line. Hind wings sordid gray, darker before antemesial pale area, which limits a faint mesial dark wavy line that joins the discal ringlet ; space beyond gray without any black scaling ; marginal black spots from apex to middle in a gray field, with some metallic scales, edged within by a slender wavy black line, that runs submarginally to anal angle. Expanse, 18-22 mm.

Three ♀♀, Walters Station, California, April, from Mr. W. D. Kearfott, presumably collected by G. H. Huston ; one type in the U. S. National Museum, two in Mr. Kearfott's collection.

Type no. 9784, U. S. Nat. Mus.

Elophila bifascialis Robinson.

Cataclysta bifascialis Robinson, Ann. Lyc. Nat. Hist. N. Y., ix, 154, 1869.

Cataclysta bifascialis Grote, New ch. list No. Am. moths, 54, 1882.

Cataclysta bifascialis Fernald, Smith, list. Lep. bor. Am., No. 4156, 1891.

Cataclysta bifascialis Hampson, Trans. Ent. Soc. Lond., 149, 1897.

Elophila bifascialis Fernald, Bull. 52, U. S. Nat. Mus., No. 4499, 1903.

Wings long and narrow ; fore wing finely powdered with black on a white ground ; a mesial ochereous band edged with gray, cut by a white line on costal half ; four other bands occupying distal third of wing, converging on tornus and separated apically by two white wedge-shaped marks ; the subterminal one shades below into metallic scales ; fringe gray. Hind wing white ; a terminal series of round black spots edged with a metallic terminal line ; a costo-discal black bar, submaculate, resting on a sordid costal area ; a discal orange mark bordered basally and outwardly by an oblique gray bar with metallic sheen ; inner area white with a gray spot above tornus. Expanse 12 to 18 mm.

Texas (Robinson).

4 specimens, one labelled Texas (coll. Prof. C. H. Fernald); 17, Texas (Belfrage); Victoria, Texas, March 22, 27, 31 (E. A. Schwarz); Kerville, Tex. (W. Barnes); Roswell, N. Mex., August 22 (T. D. A. Cockerell); Harpers Ferry, Va., August 29, 1888 (T. Pergande); Plummer's Island, Md. (A. Busck).

Ab. a. The fore wings are reddish brown, obscuring the markings.
Texas.

Ab. b. The costo-discal bar of hind wings is light bluish gray, edged with black.
Texas.

Ab. c. kearfottalis, new variety. Hind wings with the black bar replaced by two wavy black lines, filled by the white ground color; a broken black line between this and the outer marginal spots in three of the specimens.

3, Phoenix, Arizona, May (R. E. Kunzé); 1, without label (coll. W. D. Kearfott).

Type no. 9637, U. S. Nat. Mus.

I have seen no reference to the larva of this species.

***Elophila drumalis*, new species.**

Silvery white; fore wings shaded with pale ocher, leaving two outer lines which converge toward tornus; a broad inner yellowish band. Hind wing with a pale yellow inner spot and a discal one; outer margin with the black spots diffused, separated by metallic scales, duplicated within by a series of short black lines. Expanse 10 mm.

1 ♀, Fort Drum, Florida (U. S. Dept. Agr.).

Type no. 9491, U. S. Nat. Mus.

***Elophila claudialis* Walker.**

Cataclysta claudialis Walker, Cat. Brit. Mus., xvii, 437, 1859.

• *Cataclysta medicinalis* Grote, Pap., i, 15, 1881.

Chrysandeton medicinalis Grote, new ch. list No. Am. moths, 54, 1882.

Chrysandeton claudialis Fernald, Smith list Lep. bor. Am., no. 4153, 1891.

Chrysandeton claudialis Hart, Bull. Ill. Sta. lab. nat. hist., iv, 174, 1895.

Cataclysta medicinalis Hampson, Trans. ent. soc. Lond., 149, 1897.

Cataclysta claudialis Hampson, Trans. ent. soc. Lond., 151, 1897.

Elophila claudialis Fernald, Bull. 52, U. S. Nat. Mus., no. 4498, 1903.

Fore wings brown-gray; a white subbasal band narrowed to costa; a rounded triangular white patch in centre of wing; an oblique mark from outer third of costa; a subterminal white line, not attaining anal margin angle; a terminal yellow line. Hind wing white; a mesial brown-gray band narrow centrally, subfurcate on costa; containing a small ocherous space; disk powdered with black scales; a terminal row of round black spots with some metallic scales, set in a yellow margin. Expanse 11, to 13 mm.

"United States" (Walker); Carbondale, Ill. (Grote); Champaign, Ill., June 21 (Hart).

9 specimens, Central Mo., Fla. (coll. Prof. C. H. Fernald); 3, North Carolina (Morrison); Tryon, N. C. (W. F. Fiske); 2, Washington, D. C. (coll. C. V. Riley); 2, D. C., July 1 (A. Busck); Hastings, Fla., June (G. D. Hulst); Fort Drum, Fla. (U. S. Dept. Agr.); Pittsburgh, Pa., July 8, 1905 (H. Engel).

Ab. a. Smaller and darker, the white marks reduced in size, the outer oblique mark narrow or absent.

Hastings, Fla.

The larva is undescribed.

***Elophila slossonalis*, new species.**

Fore wing brown-gray; a broad straight subbasal band, white or light brown suffused; an outer fine pale line, oblique from costa; sharply angled inward, then oblique again to inner margin near tornus; subterminal band straight, white above, metallic below; terminal space faintly orange. Hindwing whitish, a dark clouded mesial band containing an orange discal mark; disk powdered with black scales; terminal black spots separated by metallic scales, set in a faintly orange terminal area. Expanse, 13 mm.

This is not improbably *E. guenealis* Snellen (*Paraponyx guenealis* Snellen, Tijds. voor Ent., xviii, 260, 1875) described in an article on the Pyralidæ of New Grenada, St. Thomas and Jamaica; but the white band is quite obscured in Snellen's figure and there are a number of differences in detail. I prefer therefore, to hold our form separate, at least until the receipt of specimens from the West Indies.

4 specimens, Charlotte Harbor, Florida, March (Mrs. Slosson); Glenwood, Fla. (Dr. Barnes), all from Prof. C. H. Fernald's collection.

***Elophila magnificalis* Hübner.**

Pyralis magnificalis Hübner, Eur. Schmett., vi Horde, die Zünsler, 18, 1776, Pl. 16, f. 104, 1796.

Cataglyphis lamialis Walker, Cat. Brit. Mus., xvii, 436, 1859.

Cataglyphis ? heliopalalis Clemens, Proc. Acad. nat. sci. Phil., xii, 218, 1860.

Chrysodeuteron heliopalalis Grote, New ch. list no. Am. moths, 54, 1882.

Chrysodeuteron lamialis Fernald, Smith list Lep. bor. Am., no. 4154, 1891.

Cataglyphis magnificalis Hampson, Trans. ent. soc. Lond., 149, 1897.

Elophila magnificalis Fernald, Bull. 52, U. S. Mat. Mus., no. 4497, 1903.

Ground color of wings silvery white with gray-brown lines; a subcostal streak to three fourths; a faint inner line closely followed by a distinct one that sends a bar in cell to the very irregular outer line; this starts on costa at end of subcostal bar,

runs obliquely nearly to tornus, then returns to discal dot, bends again to an angle on vein 1c and ends on middle of inner margin; a gray line from costa before apex to middle of outer margin; a subterminal gray line; termen pale ocherous; an ocherous line from tornus into the loop of outer line, edged with gray. Hind wings with inner and outer mesial gray lines; disk strigose dotted with black; terminal black spots large, metallic pupilled, set in a pale ocherous field. Expanse, 23 mm.

"England" (Hübner) [an error]; "United States" (Walker); Lake Teedyuscong, Pike Co., Pa. (Clemens).

4 specimens, Amherst, Mass., Orono, Maine (coll. Prof. C. H. Fernald).

The larva is unknown.

Elophila fulcalis Clemens.

Cataclysta fulcalis Clemens, Proc. acad. nat. sci. Phil., xii, 217, 1860.

• *Cataclysta angulatahs* Lederer, Wien. ent. Mon., vii, 486, 1863.

• *Cataclysta confusalis* Walker, Cat. Brit. Mus., xxxiv, 1334, 1865.

• *Chryseudeon avernalis* Grote, Trans. Kans. acad. sci., viii, 53, 1878.

Cataclysta fulcalis Grote, New ch. list No. Am. moths, 54, 1882.

Cataclysta avernalis Fernald, Smith list Lep. bor. Am., no. 4157, 1891.

Cataclysta fulcalis Hampson, Trans. ent. soc. Lond., 149, 1897.

Elophila fulcalis Fernald, Bull. 52, U. S. Nat. Mus., no. 4500, 1903.

Fore wing gray with white lines; two costal streaks converge toward tornus; two inner transverse lines, a discal spot and rounded area on middle of inner margin, all white. Hind wings white; a mesial broad gray band; disk powdered with dark scales, with a fine gray line limiting this area within; terminal black dots separated by metallic scales in a yellow field. Expanse, 12 to 15 mm.

Marked after the pattern of *E. magnificalis*, but the white marks reduced or obsolete, the black dots of hind wing not pupilled.

Easton, Pa. (Clemens); "North America" (Walker); New Mexico (Grote).

20 specimens, Amherst, Mass., Chicopee, Mass. (coll. Prof. C. H. Fernald); 8, Texas; 2, Hot Springs, Arizona, cotypes of *avernalis* Grote (coll. Fernald); Montclair, N. J., June 9, 1899 (W. D. Kearfott); 10, N. H. (coll. U. S. Nat. Mus.); Columbus, Ohio, May 25 (W. C. Metz); Plainfield, N. J. (Mrs. F. O. Herring); New Brighton, Pa., August 20, 1902 (H. D. Merrick); 2, New York, nos. 2819 and "dugway" June 25, 1859 (coll. Asa Fitch); Victoria, Tex., March 31 (E. A. Schwarz); 25, Plummer's Island, Md., June, August (A. Busck); Salem, Oregon, June 26, 1898 (T. Kincaid); Pullman, Wash., August 9, 1898 (C. V. Piper).

Ab. a. avernalis Grote. White marks of fore wing lost except subapically, the inner bar continued across wing as a fine flexuous line.

Ab. b. White markings absent except subapically, the wing varied with blackish lines and dottings.

Archer, Fla., March 9, 1882 (A. Koebele); Fla. (coll. C. H. Fernald).

Ab. c. Larger; orange-ocherous patches interposed between the white terminal marks and in the discal band of hind wings. Expanse, 18 to 28 mm.

Shovel Mt., Texas (W. Barnes); Sonora, Mexico, 40 miles from Arizona line (Morrison); 4, Phoenix, Ariz., April, May (coll. W. D. Kearfott).

The larva is unknown.

Elophila cronialis Druce.

Cataclysta cronialis Druce, Biol. Cent.-Am., Lep. Het, ii, 274, 1896.

Cataclysta cronialis Hampson, Trans. ent. soc. Lond., 149, 1897.

Marked like *E. fulicalis*, but very much larger, the middle band of fore wings and space between outer white lines marked with ocher. Hind wings with an ocher bar between the basal shading and outer powdery area before the discal dot. Expanse, 27 to 30 mm.

Jalapa, Mexico (Druce).

2 ♀, Nogales, Arizona, May; Huachuca Mts., Ariz. (Dr. Barnes).

Elophila schaefferalis, new species.

Similar to *cronialis* Druce, but much darker. Head and body blackish slate gray, black and white scales mixed. Wings dark gray, black scales densely and uniformly irrorate on a white ground. Basal area of fore wings dark; median line angled outward on median vein, narrowly separated from the dark basal area; outer line narrow, dark, faint, curved from costa to tornus whence it sends an obscure loop to just below the clouded discal ringlet; a curved, black subapical band, widest on costa; apex whitish; a black submarginal line, the margin sordid orange. Hind wing without any white spaces, all solidly irrorate with black; base dark, intensified discally; mesial line slender, black, curved, indented on submedian fold, running to anal angle; a small outer discal dot, black, followed by white scales; marginal black marks small, pointed, relieved by sordid orange within and separated by metallic scales. Expanse, 27 mm.

One female, Palmerlee, Cochise Co., Arizona (C. Schaeffer).

The type is in the Museum of the Brooklyn Institute.

Genus GESHNA, new.

Palpi upturned, the third joint long and acuminate; maxillary palpi slender smooth, moderate; frons rounded; antennæ with the shaft annulate. Fore wings with veins 7 and 10 stalked. Hind wings with the outer margin curved, bent at a slight angle in the middle.

Type, *G. cannalis* Quaint.

Synopsis of Species.

Fore wings light brown with a white discal dot.....**cannalis**.
 Fore wings yellowish white with complicated dark brown lines**primordialis**.

Geshna cannalis Quaintance.

Hydrocampa cannalis Quaintance, Bull. 45, Fla. Exp. Sta., 68, 1898.

Nymphula cannalis Dyar, Proc. Ent. Soc. Wash., iv, 463, 1901.

Nymphula cannalis Fernald, Bull. 52, U. S. Nat. Mus., no. 4494, 1903.

Entirely buff-brown, a little purplish-tinted; a quadrate white discal dot with a black dot on inner side and cusp without; inner line fine, black, strongly excurved on median vein; outer punctiform, dentate, regularly outcurved. Hind wing with a fine dentate outer line, somewhat digitately projected on middle segment, the inner segment sharply retracted to lie in line with the discal dot; a fine terminal dark line and line in fringes on both wings. Below paler; fore wings with discal dot as above, but more distinct and with an oblique black line below it; outer line punctiform, slight, bent at an angle on costa. Hind wing with discal dot and outer line, the latter punctiform-dentate, not dislocated. Expanse 18 to 24 mm.

This species probably occurs in the West Indies, but I have not as yet seen a previous description of it.

Florida (Quaintance).

2, Lake City, Fla., November 25, 1896 (A. L. Quaintance); 13, Palm Beach, Fla., February and March, 1900 (H. G. Dyar); 2, Fla. (coll. Prof. C. H. Fernald).

The larva has been fully described by Quaintance as the "Canna leaf roller." He says that the larvæ were injurious to *Canna indica* at Lake City by rolling the leaves and eating out the parenchyma from the inner (upper) side of the leaves. I have observed the same injury to the wild *Canna* at Palm Beach.

Egg. Slightly longer than broad; even outline, very flat; clear whitish yellow; surface with irregular hexagonal lines. Size $.85 \times .93$ mm. Laid in patches of six to fifteen.

Stage I. Head cordate, yellow, eyes brown. Body cylindrical, slightly tapering, yellowish, somewhat transparent; abdominal feet with a single row of brownish hooks. Tubercles normal, very small, annular; setæ large and stout with slightly swollen tips, normal (seta iib of the thorax is not shown in the figure, but should be present; it is probably so small that the artist overlooked it), primary ones only present, iv and v of abdomen approximate, superposed.

Stage II. Head cordate, yellow, clypeus yellowish brown, jaws brownish black; width 1 mm. Body cylindrical, tapering somewhat to the ends, yellowish white, transparent, greenish from the contents of the alimentary canal. Abdominal legs with a circle of stout brown hooks. Tubercles normal, subprimary ones present, the tubercles of thorax and i to iii of abdomen expanded into large plates; ia + ib,

iii + iib and iv + v on thorax, iv and v closely approximated and superposed on abdomen.

Pupa. Chocolate brown, abdomen somewhat lighter, cremaster eight stout, dark brown hooks; length, 11.5 mm.

***Geshna primordialis*, new species.**

Wings pale yellowish, more or less largely, often largely overspread with dark brown; lines dark brown, the inner slightly flexuous; discal ringlet subreniform; outer line straight to end of cell, strongly excurved to near margin above tornus, retreating below discal ringlet and reaching inner margin at middle. The brown shading fills up nearly all the space between the marks, but leaves a light edge within the inner line, beyond the outer, and before the discal ringlet. Hind wing with the base to inner line brown; a light space in which are three irregular discal spots partly or wholly fused to the outer line by dark shading; terminal area broadly dark; fringe interlined with pale. Expanse, 12 to 15 mm.

This species is common in the Northern Atlantic states, and I can only account for my failure to find any previous description of it, by its great similarity to *Blepharomastix stenialis* Guen., which may have caused it to be overlooked. It differs superficially from that species only in being smaller, although it is usually much darker shaded.

N. Ill. (A. Bolter); Hazelton, Pa., August 5, 1895 (W. G. Dietz); 4, Essex Co. Park, N. J., June 13, 1899 (W. D. Kearfott); 2, Greenwood Lake, N. J., June 10, 1900 (W. D. Kearfott); Delaware Co., Pa., July 1, 1900 (W. D. Kearfott); 21, Center Harbor, N. H., June 24, July 9, 1902 (H. G. Dyar); 2, Quebec and Ontario (A. W. Hanham); Maine (A. S. Packard); St. Louis, Mo., June 2, 1877 (C. V. Riley); 2, St. Louis, Mo., August 1 to 7, 1904 (H. A. McElhose); Eufala, Alabama (C. V. Riley); Texas (Boll); 3 Louisiana, Mo. (G. M. Dodge); Tryon, N. C., September 5 (W. F. Fiske).

Type no. 9492, U. S. Nat. Mus.

Genus DIATHRAUSTA Lederer.

Diathrausta Lederer, Wien. ent. Mon., 438, 1863.

Diathrausta Hampson, Trans. ent. soc. Lond., 205, 1897.

Palpi porrect, triangularly scaled, the third joint hidden by hair; maxillary palpi dilated with scales; frons rounded; antennæ annulated and ciliated; tibiae with the outer spurs two thirds the length of the inner. Fore wing with veins 3, 4, 5 from angle of cell; 7 well separated from 8, 9, 10. Hind wing with the cell about half the length of the wing; vein 4 absent; 6, 7 from upper angle (Hampson).

***Diathrausta reconditalis* Walker.**

Hymenia reconditalis Walker, Cat. Brit. Mus., xix, 943, 1859.

Ædiodes minualis Walker, Cat. Brit. Mus., xxxiv, 1297, 1865.

- *Diathrausta octomaculalis* Fernald, Ent. Amer., iii, 127, 1887.
- *Diathrausta pisualis* Fernald (not Walker), Smith list Lep. bor. Am., no. 3985, 1891.

Diathrausta reconditalis Hampson, Trans. ent. soc. Lond., 205, 1897.

Diathrausta reconditalis Fernald, Bull. 52, U. S. Nat. Mus., no. 4503, 1903.

Brownish black; inner line curved, ochereous; outer excurved over cell, sometimes broken, ochereous; three quadrate white dots in the position of reniform, orbicular and claviform; fringe white, black patched at middle of margin. Hind wing with round white discal spot; outer line ochereous above, white towards inner angle. Expanse 15 to 18 mm.

New York (Walker); Pa., N. Y., Ont., July 3, 1886 (Fernald).

No. 253 (coll. Prof. C. H. Fernald); Watchung Mts., N. J., June 19, 1899 (W. D. Kearfott); New Brighton, Pa., September 29, 1902 (H. D. Merrick); New Haven, Conn. (A. H. Verrill); Ft. Collins, Col., August 9, 1898 (C. P. Gillette); Chimney Gulch, Golden, Col., July 15, 1904 (E. J. Osler); Las Vegas Hot Springs, New Mexico (Schwarz & Barber); Santa Rita Mts., Pima Co., Arizona (O. C. Poling).

Genus *PILETOCERA* Lederer.

Piletocera Lederer, Wien. Ent. Mon., 431, 1863.

Piletocera Hampson, Trans. ent. soc. Lond., 209, 1897.

Palpi upturned, the second joint moderately fringed with scales in front and reaching vertex of head, the 3d obtuse; maxillary palpi extremely minute; frons rounded; antennæ of male (in our species) normal and ciliated; tibiæ with the outer spurs two thirds the length of inner. Fore wings with veins 3, 4, 5 from angle of cell; 7 well separated from 8, 9, 10. Hind wing narrow, the cell short; veins 3, 4, 5 from angle, 6, 7 from upper angle.

Hampson places under *Piletocera* eight other genera which differ in the modifications of the male antennæ. He recognizes them as subgenera. Section VIII, in which he puts our species, has no name and, on the usual supposition that these secondary sexual characters are of generic value, it appears that our species is without a genus. I am, however, retaining it in *Piletocera*. This genus has the antennæ of male with a slight tuft and distortion at middle, the fore wing with a small postmedial lobe on costa, the membrane distorted; legs naked.

Piletocera bufalis Guenée.

Stenia bufalis Guenée, Spec. Gen., viii, 245, 1854.

- *Botys stercoralis* Möschler, Verh. z.-b. Ges. Wien., xxxi, 419, 1881.

Piletocera bufalis Hampson, Trans. ent. soc. Lond., 214, 1897.

Stenia bufalis Druce, Biol. Cent.-Am., Lep. Het., ii, 561, pl. 101, f. 21, 1899.

♂ with a fovea in the cell, the wings slightly distorted. Dark gray-brown, lines blackish; inner line wavy, obscure; discal dot a squared ringlet; outer line dentate, excurved over cell, edged without with whitish. Hind wing lighter, the mesial line produced outward on central segment, faintly darker, edged without with pale; traces of a discal dot. Expanse, 14 to 20 mm.

Cayenne, French Guiana (Guenée); Paramaribo, Dutch Guiana (Möschler); Panama (Druce).

4 ♂, 3 ♀, Charlotte Harbor, Lake Worth and Miami, Fla. (Mrs. Slosson, in coll. Prof. C. H. Fernald); 10 ♀, Miami, Fla. (W. Schaus); 9 ♀, Cayenne, French Guiana (W. Schaus).

Genus STENIODES Snellen.

Steniodes Snellen, Tijds. voor. Ent., xviii, 244, 1875.

Stenia Hampson (in part), Trans. ent. soc. Lond., 206, 1897.

Palpi porrect, triangularly scaled, the third joint hidden by hair; maxillary palpi dilated at extremity; frons rounded; antennæ of male thickened and bearing a tuft of hair at one fourth from base; fore wing with vein 3 from before angle of cell; 4, 5 from angle; 7 straight and well separated from 8, 9, 10. Hind wing with the cell about half the length of the wing; vein 3 from before angle; 4, 5 approximated for a short distance; 6, 7 from upper angle.

Steniodes gelliasalis Walker.

Botys gelliasalis Walker, Cat. Brit. Mus., xix, 988, 1859.

Steniodes lutealis Snellen, Tijds. voor Ent., xviii, 245, 1875.

Stenia gelliasalis Hampson, Trans. ent. soc. Lond., 207, 1897.

Of the color and markings of *Piletocera bufalis* Guen., and easily confused therewith. The palpi are straight and porrect and white on the lower half, while in *bufalis* they are curved, though short, and are dark below. Wings squarer and more trigonate than in *bufalis*, the lines a little more delicate and less contrasted. Hind wing nearly uniformly dark, the marks obliterate. Expanse, 13 to 15 mm.

Rio Janeiro, Brazil (Walker); West Indies (Snellen).

1 ♀, Lake Worth, Florida (Mrs. Slosson); 1 ♀, Jamaica (W. Schaus); 1 ♀, Grenada, B. W. I. (W. Schaus); 1 ♀, Brownsville, Texas, Los Borregos, June 5, 1904 (H. S. Barber).

Subfamily SCOPARIINÆ.

Proboscis present; palpi porrect and hairy, the maxillary palpi dilated with long hairs. Fore wings with more or less developed tufts of raised scales in the cell; vein 7 from cell, 10 from cell. Hind wing with the median nervure non-pectinate.

Genus SCOPARIA Haworth.

Scoparia Haworth, Lep. Brit., 491, 1803.

Eudorea Curtis, Brit. Ent., vi, 170, 1825.

Lissophanes Warren, Ann. Mag. Nat. Hist., (6) viii, 67, 18.

Scoparia Hampson, Trans. ent. soc. Lond., 229, 1897.

Palpi porrect; maxillary palpi triangularly scaled; front flat; antennæ minutely ciliated; tibiae with the outer spurs about two thirds the length of the inner. Fore wing with vein 3 from before angle of cell, 4, 5, from angle, 7 well separated from 8, 9, to which 10 is approximated towards origin. Hind wing with 3 from before angle of cell, 4, 5 from angle or stalked, 6, 7 shortly stalked.

The larvæ are all unknown.

Synopsis of Species.

Outer line straight, at least not excurved mesially.

Dark gray **rectilinea.**

Pale, almost white..... **expallidalis.**

Outer line excurved over discal nervules.

Inner line arcuate.

Large species, expanse over 25 mm.

Subterminal line obsolete or as a limit to the lighter terminal area only.

♀ darkly shaded, marks obscured..... **centuriella.**

♀ light gray, marks distinct..... **normalis.**

Subterminal line defined, yellowish, sinuate..... **delphusa.**

Small species, expanse less than 25 mm.

Wing dark brown-gray, lines pale, faint..... **penumbralis.**

Markings relieved, lines in part black.

Wing with a broad contrasting pale median space.

Outer line nearer reniform than margin..... **cinereomedia.**

Outer line nearer margin than reniform. **schwarzalis.**

Median space, if pale, not contrasted, general effect unicolorous.

Spots all short black streaks..... **strigalis.**

Spots, at least in part, annular or cuspidiform.

Orbicular and reniform united by a longitudinal bar or ellipse..... **lugubralis.**

Stigmata separate.

Larger; outer line sharply and widely outcurved for half its length..... **tricoloralis.**

Smaller; outer line slightly and irregularly outcurved in the middle..... **basalis.**

Inner line straight, strongly oblique..... **torniplagalis.**

***Scoparia rectilinea* Zeller.**

Scoparia rectilinea Zeller, Verh. zool.-bot. Ges. Wien., xxiv, 427, 1874.

- *Scoparia refugalis* Hulst, Trans. Am. ent. soc., xiii, 148, 1886.

Scoparia refugalis Fernald, Smith's list Lep. Bor. Am., no. 4130, 1891.

Scoparia rectilinea Fernald, Smith's list Lep. Bor. Am., no. 4131, 1891.

Scoparia rectilinea Hampson, Trans. ent. soc. Lond., 234, 1897.

Scoparia rectilinea Dyar, Proc. U. S. nat. mus., xxvii, 918, 1904.

Dark gray ; inner line curved, narrowly black with pale inner edge, fused to the linear small black claviform ; orbicular a small obscure ellipse ; reniform two black cusps joined by a bar ; outer line black, straight, bent inward a little below costa ; terminal space black, cut by a diffused gray subterminal line, bent in the middle ; a row of terminal black dots. Hind wings gray with faint submarginal pale line. Expanse, 17-20 mm.

Vancouver Is. (Zeller) ; California (Hulst).

1, labelled "*Scoparia refugalis* Hulst, homotype" (Coll. Prof. C. H. Fernald) ; 175, Kaslo, B. C., July, August (H. G. Dyar) ; 1, Shawnigan Lake, B. C., August 29 (H. G. Dyar) ; 1, Los Angeles, Cal. (D. W. Coquillett) ; Wellington, B. C. (G. W. Taylor) ; 27, San Louis Obispo, Cal. (A. H. Vatchell, in coll. W. D. Kearfott).

***Scoparia expallidalis*, new species.**

Fore wings very pale gray, nearly white, thin and delicate ; inner line faint curved, pale brown, attached to the small, black, linear claviform ; orbicular a brown ringlet ; reniform of two cusps with a bar below ; outer line narrow, dark and straight, without excurve, separated narrowly from a brown shade that runs to margin, cut only by the white subterminal line, which is incurved at middle ; fringe maculate. Hind wings subpellucid white, gray tinted, relieving a white submarginal band faintly. Expanse, 20 mm.

6, Verdi, Nevada, June 10, 20, 30 (A. H. Vatchell, in coll. W. D. Kearfott).

Type no. 9633, U. S. Nat. Mus.

***Scoparia centuriella* Schifferrniller.**

Tinea centuriella Schifferrniller, Syst. Verz. Wien., 319, 1776.

• *Eudorea borealis* Lefebvre. Ann. ent. soc. Fr., 400, 1836.

• *Eudorea muneris* Zetterstedt, Ins. Lapl., 971, 1840.

• *Phycis quadratella* Zetterstedt, Ins. Lapl., 997, 1840.

• *Hyphena cecalis* Walker, Cat. Brit. Mus., xvi, 36, 1858.

• *Scopula caliginosalis* Walker, Cat. Brit. Mus., xxxiv, 1460, 1865.

Scoparia centuriella Grote, New ch. list Am. moths, 52, 1882.

• *Scoparia ninguinalis* Hulst, Trans. Am. ent. soc., xiii, 147, 1886.

Scoparia centuriella Fernald, Smith's list Lep. Bor. Am., no. 4127, 1891.

• *Scoparia albisinuatella* Fernald (not Packard), Smith's list Lep. Bor. Am., no. 4129½, 1891.

Scoparia centuriella Hampson, Trans. ent. soc. Lond., 234, 1897.

• *Scoparia frigidella* Hampson (not Packard), Trans. ent. soc. Lond., 234, 1897.

Scoparia albisinuatella Hampson (not Packard), Trans. ent. soc. Lond., 234, 1897.

Scoparia centuriella Staudinger & Rebel, Cat. Lep. Eur., ii, no. 946, 1901.

Scoparia centuriella Dyar, Proc. Wash. Acad. Sci., ii, 498, 1900.

Scoparia centuriella Fernald, Bull. 52, U. S. Nat. Mus., no. 4510, 1903.

Scoparia centuriella Dyar, Proc. U. S. Nat. Mus., xxvii, 918, 1904.

♂. Light ashen gray to dark blackish gray, usually pale; lines dark, diffused, the outer excurved over cell, the inner dark, often indented on the costa, the outer pale edged; a black linear claviform; narrowly elliptical or linear orbicular, quadrate suffused, reniform, hour glass shaped or of two opposed cusps; a dark shade subapically and above tornus. Hind wing sordid, dark along the margin. Expanse, 29-32 mm.

♀. Darker, the marks obscured or nearly entirely obsolete, the lines and reniform longest persistent. Expanse, 29-33 mm.

Northern Europe to the Arctic regions; Nova Scotia (Walker); Arizona (Hulst).

3 ♂, 1 ♀, Orono, Maine, Amherst, Mass (C. H. Fernald); 1 ♀, Arizona, labelled "*Scoparia ninguidalis* Hulst, type" (Coll. Prof. C. H. Fernald); 3, Montana (through C. V. Riley); 12, Popof Is., Alaska, July, 1899 (Harriman expedition); 26, Kaslo, B. C., June, July, August (H. G. Dyar); 1, New York (C. V. Riley); 1, Plattsburgh, N. Y., June 21, 1888 (H. G. Dyar); 6, Southern Utah, July, 1900 (O. C. Poling); 1, Glenwood Springs, Col., July (W. Barnes); 1, Pikes Peak, Col., above timber, July 21, 1901 (Dyar & Caudell).

The Western form is larger and somewhat more contrasted in color and may be distinguished as variety *ninguidalis* Hulst.

Scoparia normalis Dyar.

Scoparia normalis Dyar, Ent. news, xv, 71, 1904.

Pale gray; a black shade at base of fore wings; inner line dark, slightly bent at middle, thickened on costal two thirds by a broad black bar which absorbs orbicular and claviform; reniform fused to costa by a black shade, formed of two superposed confluent ellipses, partly filled with black; outer line pale, narrowly black shaded within, bent outward slightly beyond reniform; terminal space irregularly black shaded, the shades succeeding the outer line on costa and inner margin and on center of outer margin; a row of black terminal points; fringe dark gray with white dashes at the ends of the veins. Hind wings soiled whitish, darkest along outer margin. Expanse, 26 mm.

One ♀, Beulah, New Mexico, 8,000 feet (T. D. A. Cockerell). It resembles the ♂ of *centuriella* Schiff., but is very different from the ♀ of that species.

Type no. 7654, U. S. Nat. Mus.

Scoparia delphusa Druce.

Scoparia delphusa Druce, Biol. Cent.-Am., Lep. Het., ii, 279, pl. lxiv, f. 1, 1895.

Scoparia delphusa Hampson, Trans. ent. soc. Lond., 234, 1897.

Scoparia delphusa Fernald, Bull. 52, U. S. Nat. Mus., no. 4509, 1903.

"Primaries pale greyish-brown, crossed by two waved white lines edged with black on the inner side—the first near the base, the second submarginal—a dark brown spot partly crossing the wing from the costal margin towards the base, the fringe grey and brown; secondaries semihyaline greyish-white, slightly shaded with brown near the apex, the fringe greyish-white; head, antennæ, palpi and thorax pale brown, the abdomen grey. Expanse 1 inch." (Druce.)

Amecameca in Morelos, Mexico City, Mex.; Quiche Mts., Totomcapam, Guatemala (Druce). Sir George Hampson adds "Western States," but I do not otherwise know the species from our territory, nor have I seen a specimen.

Scoparia penumbralis, new species.

Smoky brownish gray; lines whitish, the inner wavy, the outer slightly excurved opposite the cell, both edged toward middle by dark narrow shades; traces of reniform discal dot apparently in two cusps, but much obscured; terminal space slightly paler; subterminal line lost. A dusky colored and very uniform species. Expanse 12 mm.

4 from Prof. Fernald labelled 318 and 7, 25 and Ent. Soc. Ont., 146 and 17, Dr. Dietz, Hazleton, Pa., June 8, 1895; 2, Montclair, N. J., June 13, 1899 (W. D. Kearfott); 1, Essex Co. Park, N. J., June 3, 1899 (W. D. Kearfott); 3, Center Harbor, N. H., June 22, 1902 (H. G. Dyar); New Brighton, Pa., June 17, 1902 (H. D. Merrick).

Type no. 9634, U. S. Nat. Mus.

Scoparia cinereomedia Dyar.

Scoparia cinereomedia Dyar, Ent. news, xv, 72, 1904.

Pale gray; basal space heavily, but not continuously shaded in black as far as the inner line; center of wing clear gray, the outwardly placed reniform composed of two superposed ellipses, clouded and fused to costa by black; outer line narrow, pale, crenulate, bent opposite reniform but not forming an arc, black edged within. Terminal space shaded in black, leaving a pale space below apex and above anal angle; terminal black spots diffuse; fringe white with a dark basal line. Hind wings greyish, subpellucid. Expanse 14.5 mm.

Two specimens, New Brighton, Pa. (H. D. Merrick.)

Type no. 7657, U. S. Nat. Mus.

Scoparia schwarzhalsi, new species.

Fore wing light gray, the extreme base dark; a broad dark shade beyond the pale sinuate inner line, enclosing the quadrate black reniform and oblique linear orbicular; a broad space of the pale ground to outer line. Reniform of two opposed black cusps; outer line dark, narrowly excurved at end of cell, dentate, closely fol-

lowed by a broad dark shade; submarginal light space excised at middle by a black mark resting on margin. Hind wings pale gray. Expanse 16 mm.

One ♂, Santa Rita Mts., Ariz., May 30, 1898 (E. A. Schwarz).
Type no. 9636, U. S. Nat. Mus.

***Scoparia strigalis*, new species.**

Light gray, lines very obscure, darker; outer line irregularly excurved over cell; a black basal dash to first line; a long black dash for claviform; a short black dash for orbicular and a longer one for reniform; two slender dashes in terminal area opposite the reniform dash; a small dark apical shade. Hind wings silky gray. Expanse 13-17 mm.

Grimsby, Ontario (J. Pettit); Delaware Co., Pa., August 17 (P. Laurent); Plummer's Is., Md., July 1, 1903 (A. Busck).

Type no. 9635, U. S. Nat. Mus.

***Scoparia lugubralis* Walker.**

Scoparia lugubralis Walker, Cat. Brit. Mus., xxxiv, 1498, 1865.

Scoparia nominatalis Hulst, Trans. Am. ent. soc., xiii, 148, 1886.

Scoparia nominatalis Hampson, Trans. ent. soc. Lond., 233, 1897.

Scoparia lugubralis Hampson, Trans. ent. soc. Lond., 233, 1897.

Scoparia lugubralis Fernald, Bull. 52, U. S. Nat. Mus., no. 4504, 1903.

Scoparia nominatalis Fernald, Bull. 52, U. S. Nat. Mus., no. 4505, 1903.

Scoparia nominatella Dyar, Proc. U. S. Nat. Mus., xxvii, 918, 1904.

Ashen gray to bluish gray, lines whitish; inner line arcuate, edged without with black, often strongly so, even forming a broad black band on costal half; claviform faint, clouded or absent; orbicular a dash, from which a line extends to reniform, or two lines, enclosing an elliptical pale space that looks like an orbicular; reniform of two opposed cusps; outer line pale, rather narrowly excurved over cell, followed by a dark shade, divided centrally; submarginal line obsolete. Hind wings subpellucid pale grayish. Expanse 17-21 mm.

St. Martin's Falls, Hudson Bay (Walker); Vancouver Is., B. C. (Hulst).

Los Angeles, Cal. (D. W. Coquillett); Arizona (Morrison); Seattle, Wash., June 7, 1902 (T. Kincaid); Glenwood Springs, Col., July 24-30 (Dr. Barnes); Pullman, Wash., July 26, 1898 (C. V. Piper); 6, Kaslo, B. C., August (J. W. Cockle, H. G. Dyar); Denver, Col. (E. J. Oslar); Platte Canyon, Col., August 26, 1904 (E. J. Oslar); Wellington, B. C. (G. W. Taylor); White Mts., N. H. (coll. Prof. C. H. Fernald).

A figure of Walker's type has been made for me by Mr. Horace Knight through the kindness of Sir G. F. Hampson. It has a faded yellowish look, but otherwise is a specimen of *nominatalis* with little

development of the dark shades. The ordinary spots are joined by a slender line on subcostal and median veins.

Scoparia tricoloralis Dyar.

Scoparia tricoloralis Dyar, Ent. news, xv, 72, 1904.

Scoparia tricoloralis Dyar, Proc. U. S. Nat. Mus., xxvii, 818, 1904.

Light gray, shaded with black; a black patch at base of fore wing on costa; inner line pale, slightly oblique, bent a little at the middle, followed on costal two-thirds by a heavy black band that absorbs the orbicular and claviform; reniform small, of two superposed black spots, followed by a large, contrasted, brown cloud; outer line narrow, white, narrowly dark-edged within, roundedly, evenly and strongly bent outward beyond the reniform; terminal space heavily black shaded, cut outwardly centrally by a diffuse pale arc, representing the subterminal line. Fringe pale, black checkered at base. Hind wings blackish shaded, subpellucid along internal margin. Expanse, 19-21 mm.

4, Wellington, B. C. (Theo. Bryant); Kaslo, B. C. (Caudell, Currie and Cockle); 4, Seattle, Wash. (O. B. Johnson); 1, Arrowhead Lake, B. C. (Dr. Barnes).

Type no. 7656, U. S. Nat. Mus.

Ab. a. The ground color is less darkened, the whitish shades to the outer line scarcely relieved; red-brown shade absent except a little in reniform.

Denver, Col., July 29, 1904 (E. J. Oslar).

Ab. b. Median space solidly filled in dark, black basally, red-brown outwardly.

Denver, Col., August 6, 1904 (E. J. Oslar).

Scoparia basalis Walker.

Scoparia basalis Walker, Cat. Brit. Mus., xxxiv, 1497, 1865.

* *Scoparia biplagalis* Walker, Cat. Brit. Mus., xxxiv, 1499, 1865.

* *Scoparia libella* Grote, Bull. U. S. Geol. Surv., iv, 675, 1878.

Scoparia libella Grote, New ch. list No. Am. moths, 52, 1882.

Scoparia libella Fernald, Smith's list Lep. bor. Am., no. 4128, 1891.

Scoparia biplagalis Hampson, Trans. ent. soc. Lond., 234, 1897.

Scoparia basalis Hampson, Trans. ent. soc. Lond., 234, 1897.

Scoparia basalis Fernald, Bull. 52, U. S. Nat. Mus., no. 4507, 1903.

* *Scoparia fernaldalis* Dyar, Ent. news, xv, 72, 1904.

Scoparia fernaldalis Dyar, Proc. U. S. Nat. Mus., xxvii, 818, 1904.

Light gray; inner line pale, gently arcuate, edged without with blackish, to which the claviform and orbicular are attached, the whole forming an apparent dark band on upper half, vacuolated in pale yellowish; reniform distant, hour-glass-shaped, filled with pale yellowish, or broken into two cusps, the yellowish often evanescent; outer line pale, gently and rather narrowly excurved over cell; terminal space dark filled, faintly cut by the pale, diffuse subterminal line, tending to become a dark triangle on center of margin. Hind wing pale grayish. Expanse, 11-16 mm.

"North America" (Walker); St. Martin's Falls, Hudson Bay (Walker); Maine, Massachusetts, New York (Grote).

One from Prof. C. H. Fernald labelled "*Scoparia libella* Grote, homotype"; Plummer's Is., Md., September, 1903 (A. Busck); New Brighton, Pa., June 9, 22, 1900 (H. D. Merrick); King and Bartlett Lk., Maine (P. Laurent); North Carolina (Morrison); Center Harbor, N. H., June 20, 1902 (H. G. Dyar); Ontario, Canada (Dr. Fletcher); Virginia, September 16, 1880 (T. Pergande); D. C., September 27, 1885 (U. S. Dept. Agriculture); Iowa (C. P. Gillette); New York (Riley coll.); Rhinebeck, N. Y., September 4, 1887, July 1888 (H. G. Dyar); North Mt., Pa. (P. Laurent); St. Louis, Mo., August 20, 1904 (H. McElhose); Archer, Fla., December 3, 1882 (A. Koebele); Pittsburgh, Pa., June 11, 1905 (H. Engel).

Ab. a. palloralis, new variety. Generally larger, paler, though not contrastingly so; the markings brown rather than black.

Arizona (Morrison); Argus Mts., Ariz., May, 1891 (A. Koebele); Wilgus, Cochise Co., Ariz. (Dr. Barnes); Beulah, New Mexico, 8,000 ft., August (T. D. A. Cockerell); Dripping Spring, N. Mex. (T. D. A. Cockerell); Platte Canyon, Colorado (E. J. Osler); Pinal Mts., Ariz., July, 1900 (R. E. Kunzé in coll. W. D. Kearfott).

Type no. 9637, U. S. Nat. Mus.

Ab. b. fernaldalis Dyar. Rather larger, distinctly darker, the ground color blackish gray, on which the markings are not strongly relieved.

194, Kaslo, B. C., June, July, August (Dyar, Currie, Caudell, Cockle); Shawnigan Lk., B. C., August 30 (H. G. Dyar); Wellington, B. C. (T. Bryant).

Type no. 7655, U. S. Nat. Mus.

Ab. c. obispalis, new variety. Small, uniformly gray, the spots blackish, diffused shades without sharp marks, the outer line nearly absent.

4, San Louis Obispo, Cal., March (A. H. Vatchell, from W. D. Kearfott).

Type no. 9638, U. S. Nat. Mus.

***Scoparia torniplagalis* Dyar.**

Scoparia torniplagalis Dyar, Journ. N. Y. ent. soc., xii, 105, 1904.

Wings narrow; light gray, basal space slightly ochereous tinted, a black subbasal point, incompletely connected to base; inner line strongly oblique, whitish, slightly

notched on median vein, black shaded without; a diffuse brown shade spreads from the black color to the disk. Reniform marked by a fine, irregular black X-mark. Outer line narrowly excurved over cell, else nearly straight, whitish, narrowly black edged within. A black shade at tornus and small dot opposite center of outer margin. Hind wing pale whitish, smoky on margin. Expanse, 17 mm.

2, Seattle, Washington (O. B. Johnson); Rico, Colorado (E. J. Osler from W. D. Kearfott).

Type no. 7886, U. S. Nat. Mus.

Scoparia atropicta Hampson.

Scoparia atropicta Hampson, Trans. ent. soc. Lond., 233, 1897.

Scoparia atropicta Fernald, Bull. 52, U. S. Nat. Mus., no. 4506, 1903.

Sir George Hampson has kindly sent me a figure of this species, which shows a form unlike anything known heretofore from North America. He says the label is "Am. Sept. 5, iv, Mus. Z. Mschl 5, 79." but adds that the locality is probably a mistake and the species is the same as *S. exhibitilis* Walker from Australia. I believe this to be correct and, with this explanation, drop the name from the American list.

**DESCRIPTIONS OF FOUR NEW SPECIES OF
NORTH AMERICAN MOTHS.**

BY HARRISON G. DYAR, PH.D.,

WASHINGTON, D. C.

Family PYRALIDÆ.

Genus **SALEBRIA** Zeller.

***Salebria engeli*, new species.**

Belongs to the group *pumilella* Rag., *annulosella* Rag., *nubiferella* Rag., *turpidella* Rag., *tenebrosella* Hulst, and resembles these forms, except that the whole wing is darkly obscured with black, on the basal half so much so as to hide the lines, while the white mark on the inner margin is large, pure white and contrasted.

One ♂, Oak Station, Pa., July 10, 1904 (sent by Mr. H. Engel).

Type no. 9787, U. S. National Museum.

Genus **IMMYRLA**, new.

Fore wings with 11 veins, hind wing with 8 veins; ♂ antennæ with a large tuft at base; palpi large, upturned, hollowed to receive the pencil-tufted maxillary palpi; fore wing with subbasal scale ridge.

Differs from *Salebria* in the presence of the scale ridge.